



INVITATION FOR BIDS
OFFICE OF PROCUREMENT & CONTRACTS

1. INSTRUCTIONS FOR BIDDERS

- a. Sealed bids will be received in the Office of Procurement & Contracts, Mississippi State University, for the purchase of the items listed herein.
- b. All bids must be received in the Office of Procurement & Contracts on or before the bid opening time and date listed herein. Delivery of bids must be during normal working hours, 8:00 a.m. to 5:00 p.m. CST, except on weekends and holidays when no delivery is possible.
- c. Bidders shall submit their bids either electronically or in a sealed envelope.
 - i. Sealed bids should include the bid number on the face of the envelope as well as the bidders' name and address. Bids should be mailed to: 245 Barr Avenue, 610 McArthur Hall, Mississippi State, MS 39762.
 - ii. At this time we only accept non-ITS bids electronically. For electronic submission of bids, go to: https://www.ms.gov/dfa/contract_bid_search and use the RFX number on the next page as your reference number.
- d. All questions regarding this bid should be directed to the Office of Procurement & Contracts at 662-325-2550.

2. TERMS AND CONDITIONS

- a. All bids should be bid "FOB Destination"
- b. Bidders must comply with all rules, regulations, and statutes relating to purchasing in the State of Mississippi, in addition to the requirements on this form. General Bid Terms and Conditions can be found here:
https://www.procurement.msstate.edu/procurement/bids/Bid_General_Terms_May_2019_V2.pdf
- c. Any contract resulting from this Invitation for Bid shall be in substantial compliance with Mississippi State University's Standard Contract Addendum:
<https://www.procurement.msstate.edu/contracts/standardaddendum.pdf>

Bid Number/RFX Number: 21-80/RFX#3160004476

Opening Date: August 17, 2021@2:00 p.m.

Description: 15kV Pad Mounted Capacitor Bank & Box Pads (Material Only)

Vendor Name: _____

Vendor Address: _____

Telephone Number: _____

Days the Offer is Firm: _____

Authorized Signature: _____

Name: _____

Title: _____

See following pages for specifications and bid pricing form.

**Specifications & Materialman's Proposal
For
15 kV Pad-Mounted Capacitor Bank & Box Pad
(Material Only)**



July 22, 2021

Prepared for:

Mississippi State University
610 McArthur Hall
Mississippi State, Mississippi 39762

Prepared by:

Atwell & Gent, P.A.
309 University Drive
Starkville, Mississippi 39759



07/22/2021

Job No.: 601E3072

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INSTRUCTION TO BIDDERS

15 KV PAD-MOUNTED CAPACITOR BANK & BOX PAD (MATERIAL ONLY)
MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI STATE, MISSISSIPPI

Bids that are sent by mail shall be clearly marked "Bid Enclosed" or "Bid Envelope Enclosed" as appropriate. The sealed envelope containing the bid shall have the following information shown on the envelope:

BID ENCLOSED

ITEM: 15 KV PAD-MOUNTED CAPACITOR BANK & BOX PAD (MATERIAL ONLY)
OWNER: MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI STATE, MISSISSIPPI
BIDDER: BIDDER'S ADDRESS
BID DUE: REFER TO ADVERTISEMENT FOR BIDS

Bids that are sent by parcel delivery service or hand-delivered should be addressed to:

Mr. Don Buffum, Director
Office of Procurements & Contracts
Mississippi State University
Barr Avenue, 610 McArthur Hall
Mississippi State, Mississippi 39762

Bids that are sent by mail should be addressed to:

Mr. Don Buffum, Director
Office of Procurements & Contracts
Mississippi State University
P.O. Box 5307
Mississippi State, Mississippi 39762

The Engineer for this project is:

Atwell & Gent, P.A.
P.O. Box 2558
Starkville, Mississippi 39760-2558
Telephone (662) 324-5658

The Engineer will represent the Owner in all matters pertaining to this project, including but not limited to, answering technical questions of prospective bidders and recommendations of lowest and best bid, acceptance of shop drawings and similar documents, and approval of invoices prior to payment by the Owner.

Submit all questions about the specifications to the Engineer, in writing. Replies will be issued to all prospective Bidders of Record. Neither the Engineer nor the Owner will be responsible for oral clarifications.

Bidders shall complete all blank spaces on the Materialman's Proposal Form for each item of equipment being bid in accordance with these specifications and terms and conditions. Bidder should insert the unit

price in the blank under the Unit Price heading and multiply this unit price by the number shown in the Number Required heading and enter the product of this multiplication in the blank under the heading Total Price for each bid item on the Materialman's Proposal Form. The bidder shall sum the Total Bid Price for each Bid Item and enter this sum in the Total Bid Price.

Bidder shall insert the delivery time in weeks after receipt of an order for each item of equipment bid in the blank provided on the Materialman's Proposal Form. Bidder shall also indicate equipment being bid by the manufacturer's name and catalog number in the blanks provided on the Proposal Form. Bidder shall indicate warranty term to be provided in the blanks on the Proposal Form. Finally, Bidder shall indicate the rated mechanical life (e.g. total number of open-close operations) of the substation voltage regulator in the blanks on the Proposal Form.

Bidder shall complete the Materialman's Proposal Form bound in these Specifications and shall submit two copies to the OWNER at the time that the bids are due. Bidders taking exceptions to any part of the specifications, conditions, or payment terms specified herein shall show such exception on the Materialman's Proposal Form in the space provided. If exceptions are not shown on the Proposal Form, Bidder must supply equipment specified herein under the terms and conditions specified herein. Proposal forms shall remain bound in the Specifications. Proposals that are modified, excepted, or in any way changed from the proposal that the OWNER is requesting in this request for proposals may be rejected by the OWNER.

It is intent of the OWNER to award the bid for these 15 KV PAD-MOUNTED CAPACITOR BANK UNITS & BOX PAD (MATERIAL ONLY) to the bidder with lowest and best responsive bid for Bid Items #1 and #2 inclusive.

PROPOSAL FORM

15 KV PAD-MOUNTED CAPACITOR BANK & BOX PAD (MATERIAL ONLY)
MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI STATE, MISSISSIPPI

To: Mr. Don Buffum, Director
Office of Procurements & Contracts
Mississippi State University
Barr Avenue, 610 McArthur Hall
Mississippi State, Mississippi 39762

The undersigned (hereinafter called the MATERIALMAN) acknowledges by his signature that he has received and examined the documents entitled "Specifications and Materialman's Proposal for 15 KV PAD-MOUNTED CAPACITOR BANK & BOX PAD (MATERIAL ONLY) for Mississippi State University (hereinafter called the OWNER), dated July 22, 2021, and has included the provisions of the Specifications in his Proposal. The MATERIALMAN further acknowledges that he has received the following addenda:

Addendum No. _____ Dated _____

The Materialman hereby proposes to sell and deliver to OWNER, upon the terms and conditions herein stated, the equipment specified in the attached specification for the following sums:

<u>Bid Item</u>	<u>Description</u>	<u>Unit Price</u>	<u>No. Req'd</u>	<u>Unit</u>	<u>Total Price</u>
1	15 kV Pad-Mounted Capacitor Bank	_____	1	EA	_____
2	Box Pad for Pad-Mounted Capacitor Bank	_____	1	EA	_____

- A. The total prices set forth above shall be firm if accepted by the OWNER within forty-five (45) days and shall include delivery to OWNER, ready for OWNER's use.
- B. The prices set forth herein do not include any sums which are or which may be payable by the MATERIALMAN on account of taxes imposed by any taxing authority upon the sale, purchase, or use of the equipment. If any such tax is applicable to the sale, purchase, or use of the equipment, the amount thereof shall be added to the purchase price and paid by the OWNER.
- C. The items included in each of the above bid prices are as follows:

BID ITEM NO. 1

MANUFACTURER: _____

CATALOG NO.: _____

BID ITEM NO. 2

MANUFACTURER: _____

CATALOG NO.: _____

- D. The warranty for each of the above bid items shall be as follows:

BID ITEM NO. 1: _____

BID ITEM NO. 2: _____

- E. The times of delivery shall be as follows:

BID ITEM NO. 1: _____

BID ITEM NO. 2: _____

- F. Title of the equipment shall pass to the Owner upon:

1. Delivery to location specified.
2. Satisfactory inspection for in-transit damage.
3. Acceptance by the Owner.

- G. The MATERIALMAN shall include engineering data with his proposal as specified and as required to evaluate bid.

- H. Bidder hereby certifies that he is:

() Manufacturer

() Manufacturer's Authorized Mississippi Representative

- I. Exceptions: _____

J. It is understood by the undersigned that the OWNER retains the privilege of accepting or rejecting all or any part of this proposal and to waive any informalities or technicalities therein. Counter-proposals or qualified bids shall be subject to rejection at the discretion of the OWNER.

It is also understood by the undersigned that the OWNER reserves the right to conduct investigations to evaluate the proposals received and to award the bid for this equipment to the lowest Bidder, who in the OWNER's evaluation will provide the equipment which will be in the best interest of the OWNER.

MATERIALMAN:

BY: _____

TITLE: _____

COMPANY: _____

ADDRESS: _____

TELEPHONE NO.: _____

EMAIL: _____

DATE SIGNED: _____

SPECIFICATION FOR 15 KV PAD-MOUNTED CAPACITOR BANK

1.1 SCOPE

A. Section Includes:

1. Bid Item.
2. References.
3. Submittals.
4. Quality Assurance.
5. Pad-Mounted Switched Capacitor Bank.
6. Current Sensor for Var Control.
7. Capacitor Bank Control.

1.2 BID ITEM

- #### **A. Bid Item #1: Pad-Mounted Capacitor Bank complete with current sensor, cabling, control, and appurtenances.**

1.3 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI C57.12.29 - Pad-Mounted Equipment - Enclosure Integrity for Coastal Environments.

B. Institute of Electrical and Electronics Engineers:

1. IEEE 48 - Standard Test Procedures and Requirements for Alternating-Current Cable Terminations 2.5 kV Through 765 kV.
2. IEEE 386 - Standard for Separable Insulated Connector Systems for Power Distribution Systems above 600 V.
3. IEEE C2 - National Electrical Safety Code.
4. IEEE C57.13 - Standard Requirements for Instrument Transformers.

C. International Electrical Testing Association:

1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

D. National Electrical Manufacturers Association:

1. NEMA 260 - Safety Labels for Pad-Mounted Switchgear and Transformers Sited in Public Areas.

1.4 SUBMITTALS

- A. Submit catalog data on all equipment items specified in this section to be utilized on this Project.
- B. Sufficient information, clearly presented shall be included to determine compliance with Drawings and Specifications.
- C. The specific item proposed and its area of application shall be marked on the catalog cuts.
- D. Shop Drawings: Indicate electrical characteristics and connection requirements, outline dimensions, connection and support points, weight, specified ratings and materials.
- E. Product Data: Submit electrical characteristics and connection requirements, standard model design tests, and options.
- F. Test Reports: Indicate procedures and results for specified factory and field testing and inspection.

1.5 QUALITY ASSURANCE

- A. Furnish minimum one-year warranty on pad mounted capacitor bank, control and appurtenances.
- B. Pad-mounted capacitor banks shall be manufactured within the United States of America.

1.6 PAD-MOUNTED SWITCHED CAPACITOR BANK

- A. Manufacturers: Cooper Power Systems "MEEPE122"; Hubbell "TRINETICS"; Federal Pacific "CB4900-2003U-N*Y".
- B. Substitutions: As Accepted.
- C. Service Conditions:
 - 1. Maximum Ambient Temperature: 104 degrees F.
 - 2. Use in Starkville, Mississippi.
- D. Ratings:
 - 3. Bank kVAR: 900.
 - 4. Nominal Voltage: 13,200 volts line-to-line.
 - 5. BIL: 95 kV.
 - 6. Type: Switched.
- E. Product Description: Pad-mounted, 900 KVAR, radial-fed, switched capacitor bank, completely assembled as a unit with capacitors mounted in an enclosure that is designed to be pad mounted. The unit shall be completely prewired at the factory. All high voltage wiring and bushing terminals shall have wildlife protection. The unit shall be fully assembled, complete with bushing wells, bushing inserts, current limiting fuses, capacitors, vacuum

switches, control power transformer, all mounted and fully wired within a pad mounted enclosure as specified below:

1. Capacitor Bank Enclosure: Provide weather resistant, outdoor rated, NEMA 3R, 11-gauge mild steel, welded construction on a heavy-duty rectangular steel channel base with open bottom for mounting on a concrete pad foundation. Enclosure shall include pad-lockable penta-head door handles with 3-point latching. All hardware shall be stainless steel.
2. Enclosure Finish Color: The exterior of the unit shall be painted MSU Dark Bronze, Carboline F235 Dark Bronze, Valspar KMB0082 Dark Bronze or as accepted.
3. Bushing Wells: Provide three (3) 200 ampere, 15 kV IEEE386 bushing wells designed to accommodate 15 kV loadbreak bushings. Furnish parking stands (three total) adjacent to each bushing well.
4. Bushing Inserts: Provide three (3) 200 ampere, 15 kV IEEE386 bushing inserts installed in bushing wells.
5. Current Limiting Fuses and Holders: Provide primary overcurrent protection for each capacitor and control power transformer. Fuses shall be current limiting type, type NX, 8.3 kV, clip style, size as required. Include fuse holders.
6. Current Limiting Reactors: Provide current limiting reactors for each capacitor. Reactors shall be rated 40 micro-henry, 180 ampere, 15 kV, 110 kV BIL.
7. Mounting Rack: Provide capacitor mounting rack(s) shall be sized to accommodate three (3) 300 KVAR capacitor and three (3) vacuum switches. Rack(s) shall be constructed of aluminum or galvanized steel and shall have mounting brackets for mounting of capacitors and capacitor control switches within the pad mounted enclosure. Capacitors and vacuum switches shall be fully assembled on rack(s).
8. Capacitors: Provide capacitors shall be single phase units and shall be rated at 300 KVAR, 95 KV BIL, and 7,620 volts. Capacitors shall be two bushing type of an all film design. Capacitor tanks shall be stainless steel with a light gray enamel finish. Tank shall be complete with NEMA standard mounting brackets and lifting eyes. Capacitors shall have an internal discharge resistor assembly that reduces terminal voltage to 50 volts or less within 5 minutes after disconnecting the capacitors. Dielectric fluid shall be non-PCB type. Dielectric losses shall be 0.15 watts/KVAR or less.
9. Vacuum Switches: Provide one control switch per phase and switches shall be vacuum insulated, 110 KV BIL, and rated at 200 amperes continuous current. Capacitor control switches shall be Eaton Type ECS, or equal.
10. Control Power Transformer: Provide one (1) control power transformer, dry type, 1.0 kVA minimum, 7620 volts primary, 120 volts secondary, 110 kV BIL, 60 Hertz, with primary fusing, ABB Type VIZ-11 or equal.
11. Arresters: Provide surge arrester for each primary phase (3 total). Arresters shall be heavy duty polymer type, rated 10 kV (8.4 MCOV).
12. Neutral Sensor: Provide neutral current sensor for capacitor bank unbalance protection.

13. Control Terminal Block: Provide all control (trip, close, common) and power (120VAC, neutral, ground) wiring prewired between devices (vacuum switches) and a terminal block for Owner's use in making final connection to Capacitor Control. Terminal block shall be rated, 30-ampere terminal blocks, with washer head binding screw-type terminals, 10-32 threads, and molded one-piece construction, GE type EB-25 or approved equal. All wiring shall be weatherproof.
14. Grounding Lugs: Furnished with two ground pads installed on pad-mount capacitor enclosure. Entire assembly shall be bonded and grounded from factory. Ground pads shall be NEMA two-hole type.
15. Cabinet Heater: Furnish cabinet heater with adjustable thermostat, sizing by manufacturer to suit environmental conditions.
16. Labeling: Furnish safety labels in accordance with NEMA 260.

1.7 CURRENT SENSOR FOR VAR CONTROL

- A. Manufacturers: Lindsey Catalog No. 9520/1023.
- B. Substitutions: As accepted.
- C. Product Description: Current sensor for VAR control, 600A:10V, split core type, Linsey Elbowsense "#9520/1023", or equal.

1.8 CAPACITOR BANK CONTROL

- A. Manufacturers: Valquest VAR-MIN.
- B. Substitutions: None.
- C. Product Description: Capacitor control shall be pole-mounted, designed to bring capacitors switches on and offline based on programmable time, temperature, time-biased voltage, time-biased temperature, voltage, KVAR and current set points. Control shall be furnished complete with a high and low voltage override feature that will trip the capacitors switches when the system voltage goes above a preset high voltage level regardless of time/temperature set points and will close the capacitor switches when the system voltage falls below the preset low voltage level regardless of time/temperature set points. Control shall have the following features:
 1. Fiberglass NEMA 3R enclosure, UV stabilized, completely gasketed, with hasp for padlocking provisions.
 2. External, shielded temperature sensing element.
 3. Thermostat with a minimum programmable range of 20 degrees F to 120 degrees F.
 4. True RMS voltage sensing with a minimum programmable range of 110 to 127 volts.
 5. Contacts rated at 20 amperes at 120 volts.
 6. Protective fuse.
 7. Operations counter provided as software function.

8. Auto/Manual switch and Open/Neutral/Close switch for manual operation.
9. Control sequence for temperature control shall be compatible with vacuum switches furnished with pad-mounted capacitor.

SPECIFICATION FOR BOX PAD FOR PAD-MOUNTED CAPACITOR BANK

1.1 SCOPE

A. Section Includes:

1. Bid Item.
2. References.
3. Submittals.
4. Box Pad.

1.2 BID ITEM

- A. Bid Item #2: Box Pad for Pad-Mounted Capacitor Bank furnished under Bid Item #1.

1.3 REFERENCES

A. ASTM International:

1. ASTM C857-07 "Practice ASTM C857-07 "Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures".
2. ASTM C858-07 "Specifications for Underground Precast Concrete Utility Structures".

1.4 SUBMITTALS

- A. Submit catalog data on all equipment items specified in this section to be utilized on this Project.
- B. Sufficient information, clearly presented shall be included to determine compliance with Drawings and Specifications.
- C. The specific item proposed and its area of application shall be marked on the catalog cuts.
- D. Shop Drawings: Indicate electrical characteristics and connection requirements, outline dimensions, connection and support points, weight, specified ratings and materials.
- E. Product Data: Submit electrical characteristics and connection requirements, standard model design tests, and options.
- F. Test Reports: Indicate procedures and results for specified factory and field testing and inspection.

1.5 BOX PAD

- A. Manufacturers: Concast, Catalog No. FC-86-86-36-7474 or equal.
- B. Substitutions: As accepted by Engineer.

- C. Product Description: Precast concrete box pad shall be constructed of non-corrosive polymer or fiberglass reinforced cement mortar. Box pad shall be designed, detailed, and fabricated in accordance with the requirements of this specification and shall be sized and designed to accommodate the pad mounted capacitor bank furnished under Bid Item #1.
- D. Dimensions: Top dimensions of box pad shall be approximately 86" X 86". The depth of the box pad shall be 36" minimum. The box pad shall have a 74' x 74' center opening for cable entry, exit and training. Dimensions shall be adjusted as required to suit actual pad-mounted capacitor bank furnished.
- E. Construction:
- F. Concrete Composite: Molded of sand and aggregate, bound together with a polymer resin, and reinforced with steel or fiberglass or a combination of the two.
 - 1. Finish: Box and cover color shall have natural gray finish.
 - 2. Load Rating: Box pad shall be designed to support the weight of the aforementioned pad mounted switchgear unit, to withstand soil pressures on sidewalls, to create a vault for training and operation of cables, and to provide a flat, rigid surface for mounting and fastening pad mounted switchgear unit. Box pad shall be designed for soil pressures using ASTM C857.
- G. Accessories: Box pad shall be equipped with non-corrosive fasteners for mounting pad mounted switchgear. Surface shall be flat to within 1/16" across top surface. Top edge to be 45° chamfer.